



Learning Effectiveness of Blended Learning in Higher Education Context

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Abstract

The notion of applying ICT to support traditional learning approach (face-to-face learning) is obviously not new today. This study aimed to obtain the significant difference between the mid test and final test scores of students' English listening and reading skills. Mid test score represents face-to-face learning approach applied from first meeting whereas final test score represents blended learning approach employed after the mid test. The method used in this study was quantitative and qualitative. A random selection of samples was carried out involving 133 first year undergraduates in Jakarta pursuing English as a compulsory course. Data collection technique used mid and final tests of two English skills: listening and reading. This study revealed that there was a significant difference between the mid-test and the post-test scores. After that, most of the students perceived that the blended learning was considered practical and efficient in their learning process that influenced their English skill abilities.

Keywords: traditional learning approach, blended learning, listening, reading

A. Introduction

Over the past decades, face-to-face learning has become the standard in most pedagogical institutions or corporates. In this classroom setting, students have an opportunity to have in-person interactions with their peers and instructor at a predetermined time. It is not amazing, therefore, if some students prefer face-to-face learning because they are already familiar with that traditional learning approach.

On the other hand, currently we cannot deny the fact that technological advances have considerably influenced teaching and learning process, particularly English language as a foreign language, in a higher education context. More universities right now transform by applying and making more use of information and communication technologies (ICT) in delivering course content. This web-based learning is regarded a potential benefit in order to

keep up with the rapid change of education environment. Hence, students' online learning experience and related processes are popular research topics. Besides, it is essential to determine whether the use of blended learning approach produce a positive impact on learners' academic performance. Dowling et al. (2003) examined whether a hybrid, flexible teaching method, in comparison to traditional face-to-face lectures, improved learning outcomes. Their results suggested a positive change in student grades when a combination of the traditional approach and extensive use of multi-media resources was used. Therefore, in this study, the researcher was interested in finding out whether there was a significant difference between two learning approaches and students' performance, in the forms of mid-test and final test scores of listening and reading skills. This study specifically aimed to answer the question, "*Is there a significant difference between the mid-test score and final test score?*". In this matter, learning effectiveness was defined as learning outcome of learners (Mashaw, 2012). Moreover, effectiveness often referred to success (Alsabawy et al., 2011).

B. Literature Review

1. Blended Learning Concept

Blended learning is generally defined as the integration of face-to-face learning and online or e-learning (Bonk & Graham, 2006, Bliucet al., 2007, Sharma & Barrett 2007). In order to recognize the degree of blending that appears within these two approaches, Jones et al. (2009) provides a classification based on the level of online resources used. Jones et al. (2009) continuum of blended learning in Figure 1, which begins with no ICT use, then proceeds to the most basic level of information and communication technology used to support face-to-face teaching, to intensive use, whereby the whole module is delivered online with minimal or no face-to-face interaction (Jones, 2006). As a matter of fact, teaching and learning cannot be solely relied on technology but also face-to-face classroom interaction. Thus, blended learning approach is adopted due to its benefits in enhancing the quality of teaching and learning, particularly in higher learning institutions.

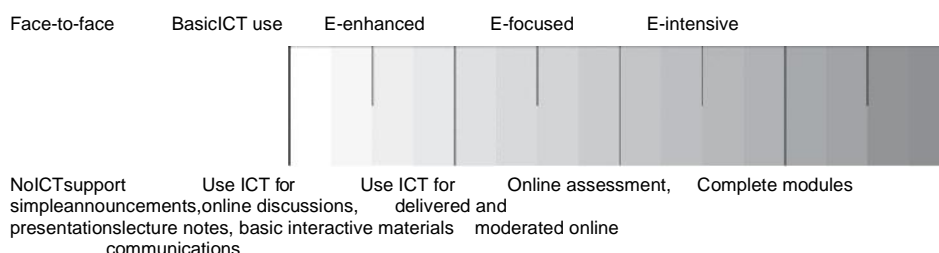


Figure 1. Enhanced Continuum of Blended Learning
(Source: Adapted from Jones *et al.* (2009, p. 15))

In 2002, Driscoll identified four concepts of blended learning namely (1) combining or mixing web-based technology modes, such as class virtual live, collaborative learning, video streaming, audio and text, (2) combining pedagogical approaches, such as cognitivism, constructivism, behaviorism, to produce optimal learning with or without use of technology, (3) combining all forms of learning technology such as video tapes, CDRoms, web based training, film led by instructor's face to face meeting, (4) mix actual learning technology for creating a harmonious effect of learning and work. The compositions of blended learning that are often used are the 50/50 pattern meaning the time allocation for 50% face-to-face meeting and 50% online learning, 75/25 pattern meaning 75% face-to-face meeting and 25% online learning, and some have implemented 25/75 meaning 25% face-to-face learning and 75% using online learning. The use of the pattern depends on the analysis of competencies needed, course objectives, learner characteristics, learner characteristics and abilities and available resources. However, the main consideration in designing the composition of learning is the provision of suitable learning resources for various learner characteristics so that learning becomes interesting, effective and efficient.

Of course, traditional learning and e-learning environments have both advantages and disadvantages. In a traditional learning environment the learning environment can be controlled. In addition, instructor is able to use various learning methods or components according to learner's needs. Learners are embedded in a rich social context; they interact with

each other and get immediate feedback from other learners or instructors (Acton et al. 2005; Hill et al. 2013). Traditional learning environments often connect with high costs in corporate education. Often employees have to travel to participate in training and stay away from work.

The implementation of blended learning contributes to some factors, such as improving pedagogy, upgrading accessibility and flexibility, as well as increasing cost-effectiveness (Graham, 2006), enhancing social communications, students' self-confidence and abilities, enhancing the quality of the learning environment and developing critical thinking while promoting integration of technology as an effective tool to convey information to students (Farahiza Zaihan Azizan, 2010). Izudin Syarif (2013) mentioned that there is a significant improvement in the motivation and performance of students following blended learning. Norasyikin (2014) also pointed out that the element of physical and virtual meetings between lecturers and students have great bearing in the learning of a second language.

C. Methodology

1. Research Design

Creswell (2014) believes that researchers must question themselves about the knowledge claims and theoretical perspectives that they are bringing to any research, they must reflect upon the strategies they intend to use within their study which will in turn inform their methods, and have questioned how they will collect and analyze information. This must be done in order that researchers are cognizant of any bias that they might bring to any research investigation, how it will affect the choice of approach that they utilize and the tools with which they choose to collect their data (Vogt et al., 2012).

Broadly speaking, there are three distinct approaches to connecting research. They are quantitative, qualitative and mixed methods. Creswell (2014) considers research designs to be different types of inquiry within these different approaches which Denzin and Lincoln (2011, cited in Creswell, 2014, p. 12) called "strategies of inquiry". Furthermore, Creswell (2014) regards the development of modern technology as providing a multitude of opportunities for innovative research design and advanced procedures in social science.

This research used mixed methods. This study was conducted to find out the empirical evidence of the effectiveness of using blended learning model on students' listening and reading skills. The data was from the mid-term and final test scores. In addition, qualitative method was used to describe students' perceptions toward blended learning impact to their learning process. Therefore, questionnaires were distributed to the students as the participants of the study. As mentioned by Creswell, qualitative research places emphasis upon exploring and understanding "... the meaning individuals or groups ascribe to a social or human problem" (p. 4).

This study was conducted to prove whether there was cause and effect between two variables. Those two variables were independent variable (mostly presented by X) that is blended learning and dependent variable (mostly presented by Y) that consists of listening and reading skills.

2. Sample

A random selection of samples was carried out involving 133 first year undergraduates in Jakarta pursuing English as a compulsory course. The research being reported in this paper involved a case study conducted over two consecutive semesters commencing from Semester 2/2017 through to Semester 1/2018. Before the mid test, the classes employed traditional face-to-face learning and after the mid test they received blended learning. Therefore, mid-test score represents face-to-face learning approach applied from first meeting whereas final test score represents blended learning approach employed after the mid-test.

3. Technique of Data Collection

Data collection technique used mid-test and final test. A mid-test provides a measure on some attribute or character that assess for participants in an experiment before they receive treatment, while final test is conducted after the treatment. After the treatment, final test was distributed. The function of this final test was to find out whether any improvement in listening and reading abilities. Upon completion, the mid and final test scores were then analyzed using

the Statistical Package for the Social Sciences (SPSS). Mean scores were used to determine the learning effectiveness of blended learning approach.

4. Instruments

Listening and reading tests were the instruments in this study. The test instrument was divided into two: mid-term and final tests. Each test contained multiple-choice questions. International certified learning center provided the tests consisting of 200 multiple-choice questions that were divided into 100 questions for listening section and 100 for reading section for 120 minutes. Listening section score range was 5-495 and reading section range was 5-495. So, the total range of the score is 10-990. The score is determined based on the number of questions answered correctly that is converted to the scale of determining the score. Therefore, the students' performance in this study referred to learners' score of each skill.

5. Technique of Data Analysis

In order to find which statistical hypothesis was accepted, the writer used t-test. The statistical hypothesis states as below:

1. Null Hypothesis (H_0)= It means there is no significant difference between the mid-term test score and final test score.
2. Alternative Hypothesis (H_a) = It means there is a significant difference between the mid-term test score and final test score.

D. Findings and Discussion

1. Students' Score Result

Table 1 is the output for paired sample statistics. Paired sample statistic is descriptive statistic for the data processed in this study. The table gives information that the number of samples is 133, the mean value of each data, standard deviation, and the standard error mean. In order to understand students' learning performance after mid-term test, it is found that students, who received the intervention of blended learning, got the higher average score in listening skill (mean = 336.47) and reading skill (mean = 266.13).

Table 1. Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Score Listening UTS	155.08	133	34.471	2.989
	Score Listening UAS	336.47	133	101.391	8.792
Pair 2	Score Reading UTS	152.44	133	39.594	3.433
	Score Reading UAS	266.13	133	110.686	9.598
Pair 3	Score Total UTS	307.52	133	69.809	6.053
	Score Total UAS	602.59	133	204.409	17.725

After that, table 2 is the result table of the paired sample t-test. The information in this table becomes the basis for making a decision whether there is a significant difference between the UTS score and the UAS score, both for listening scores, reading scores, and total scores. The result shows that sig. (2 tailed) are all <0.05, meaning that all the different tests performed indicates that there is a significant difference between the scores in the mid test and scores in the final test.

Table 2. Paired Samples Statistics

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Score Listening UTS - Score Listening UAS	-181.391	77.061	6.682	-194.609	-168.173	-27.146	132	.000
Pair 2	Score Reading UTS - Score Reading UAS	-113.684	81.415	7.060	-127.649	-99.720	-16.104	132	.000
Pair 3	Score Total UTS - Score Total UAS	-295.075	148.197	12.850	-320.494	-269.656	-22.962	132	.000

From the results above, it is obvious that the blended learning implementation contributes to improve the pedagogy, especially learners' abilities in English listening and reading skills. The combination conventional face-to-face learning with e-learning reveals the effectiveness of integrated learning in increasing the achievement of students' listening and reading skill. The results of this study supports previous studies that prove the effectiveness of blended learning in higher education setting.

2. Students' Perceptions

For most of the students, they agreed to blended learning model applied in English course that semester. Ninety percent of the students concurred with the idea of blended learning applied by the university because of practicality. They did not have to go to campus and study for hours. Instead, they could do online learning and have interactive learning with their lecturers anywhere they preferred. After that, they could submit any assignments using the website and created paperless campus. Most of the students also felt proud to their campus because of being update with current technology in teaching learning process. Below are some students' comments toward blended learning model.

"Blended learning is simple and does not make student feel the hard time. In this blended learning maybe the first time I try is very confusing but after we know the system and the process, it is make easier and does not take a long time and we can take the short semester in our home and we do not need to go to campus. Blended learning in this semester proves that our campus is a campus who can use technology in the positive way and make their student use the smart phone not just for using the social media but we can run short semester without going to campus."(Student 53)

"I agree with the blended learning applied in this short semester because it is more efficient and can save the time. In addition, students do not need to come to campus to attend lectures so it can be done anywhere. It can be more flexible to collect assignments in one week." (Student 72)

"I totally agree applied blended learning in this present semester because in digital era like this technology is increasingly used each day by all of us as the individuals who are surrounded by technological developments. We must be able to use it very well. From the beginning, at the time of the industrial revolution 1.0 to this day 4.0, technological development is significant as it aims to facilitate us in our everyday work. In this blended learning program, we make a good use of technology. By applying application of blended learning, it allows the student to enjoy and be efficient in participating in this program." (Student 112)

"I agree with the blended learning applied in this short semester. With blended learning, we are more flexible to choose the time and place to access the learning itself. Blended learning also makes it easier for the students to interact with lecturers efficiently. And make it easier for students to carry out other activities after the blended learning process without attending directly to campus." (Student 128)

"I agree with the blended learning applied in present semester. Now there is blended learning for this semester that very helps me finish my courses more efficiently and no waste of my time. Maybe sometimes the blended learning can make me less to understand the meaning of materials on this course and the connection has some interruptions during video conferences. However, I think that is not a big problem because that can be solved and improved in the future. Besides, it makes me more independent to solve the problems in English and study about English." (Student 131)

Below are comments from students who disagreed with the blended learning. They disagreed because the campus did not socialize maximally so that it created confusion for the students. In assignments, they did not have much time to complete them since in blended learning they were given a week to complete them. After that, the sound quality and internet connection during video conference gave them problems in the learning process.

"I disagree because socialization to the students does not maximize at the very beginning of blended learning implementation and then we can neglect learning education for example when

we get assignment we can shirk from it. If in classroom there is still a reminder to complete our assignment but it does not exist in blended learning. After that, sometimes the connection is poor, we do not have much time to complete our assignment, and students can also neglect any assignments given by the lecturers.”(Student 60)

“Actually I disagree with this new ways of learning. The reason why I did not agree with blended learning is the problem that I will face, the sound problem. It is often interrupted and noisy when the learning process is blended learning. The way to overcome the sound problem is to turn off the voice during the blended learning process and turn on the voice when you want to answer the question or when asked by the lecturer. The second problem is the internet connection because blended learning is carried out online and requires a stable internet connection.”(Student 11)

“I do not prefer blended learning because there are some disadvantages in the blended learning system in the many advantages of the blended learning system. One of which is to make students may have a little problem in terms of interaction due to lack of socialization with students or lecturers directly. Because it is very dependent on the internet, then once the internet connection is slow or even disconnected, making learning disrupted even a few students who neglect their assignments. The student's confusion through online learning is one of the student's negligence facts about the blended learning. Students do not know clearly about the material that must be taught and practiced directly.” (Student 25)

The students were also asked about their problems during the process of blended learning and the way to handle it. Most of them stated that their problems were with sound quality and internet connection during the video conference. They overcame it by assure to locate the best internet signal during the session. After that, time duration to finish their assignments was only a week. Therefore, they had to manage their time well to enable them to complete the tasks in time.

“The obstacle I faced was video conference because it was an opportunity to get points when the lecturer gave a few short questions but sometimes it was blocked by my internet connection which was sometimes unstable which resulted in me being unable to answer the questions given by the lecturer, thus for video conferencing then I have to prepare a good internet connection in order to be able to answer a number of questions given by the lecturer and I have to focus on paying attention because video conferencing is very rarely done.”(Student 33)

“The problem I faced in the blended learning process is that there are too many tasks in every session that required I to do it because if I do not do the tasks, then I will be declared absent. From the problem I faced above the way I solve it is by prioritizing what I will do first, but prioritizing it is not enough, I also must to reduce my rest time or my sleep because I must to do English assignments.” (Student 42)

“The problem I will face is a sound problem that is often interrupted and noisy during the blended learning process. The way to deal with sound problems is to turn off the sound during the mixed learning process and turn on the sound when you want to answer a question or when asked by a lecturer. The challenge that I will face is clear about internet connection because blended learning is done online and requires a stable and unbroken internet connection the way to overcome internet connection problems is to ensure that the internet connection in that place is stable and good and requires Wifi so that the network will well.” (Student 76)

“The problem that is obtained in undergoing blended learning is first when carrying out video conference sometimes because the signal is less supportive so the video likes to be intermittent and the sound is also less able to be heard properly, and when there is a question or when absent by the lecturer I want to answer well but sometimes my voice cannot be heard by the lecturer because of a bad signal. The second task for each week is very much from assignments in the forum and assignment, all tasks must be done every week and sometimes I am a little confused and difficult to do the task because there are some tasks that I do not understand how to do it. But the solution that I can take to solve the problem above is for video conference. I will try to find a good place to get a better signal, and to do the task I try to understand the whole task well and manage the time

to do all the tasks. So, all tasks can be completed and collected before the specified deadline.” (Student 81)

E. Conclusion

Nowadays, due to the pervasiveness of the Internet teaching and learning processes must be transforming in order to develop students' self-directed learning anytime and anywhere. This study aimed to measure the effectiveness of blended learning environment that is laid out on the basis of features for face-to-face and online environments. The study was applied to 133 students who attended English course in their first year. Blended learning has been designed in the form of online material sharing, forum and exam. Following the training, a scale had been applied to the students on the effectiveness of blended learning environment.

From this study, it is found that there is a significant difference between mid test score and final test score. There is a significant difference between mid test listening scores and final test listening scores because sig 2 tailed 0,000 <0.05. In addition, there is a significant difference between mid test reading scores and final test reading scores because sig 2 tailed 0,000 <0.05. There is a significant difference between the total mid test score with the total final test score because sig 2 tailed 0,000 <0.05. Thus, alternative hypothesis is accepted in this study.

Blended learning gives a significant impact toward the students' learning performance. In this study, the students' listening and reading scores increased in their final test compared to their mid test. It happens because of blended learning applied in teaching learning process after the mid test. Therefore, blended learning is suggested to further improve students' learning performance, particularly in listening and reading skills.

Most of the students regarded that blended learning gave them several benefits. In terms of practicality, they could learn English from any places. They did not have to attend the class for hours in the campus. After that, they could submit their assignments via online. Pride toward themselves and university were other benefits of using technology in the teaching learning process. However, we cannot deny that there are obstacles during the process. It related to the sound quality and internet connection during the video conference. After that, limited time duration in completing students' assignments became another issue in the blended learning. Though there were some problems in the learning process, the students could learn to manage it. These actually become the challenges faced by the university to improve the quality of blended learning.

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